CLAIMS

What is claimed is:

1. A method for manufacturing a magnetic structure on a magnetic write head, comprising:

constructing a photoresist layer having a trench;

depositing a magnetic material into the trench;

removing the photoresist layer;

depositing a dielectric material;

performing a chemical mechanical polish to remove a portion of said dielectric material;

performing a reactive ion mill procedure to remove a sufficient amount of dielectric material to expose said magnetic material.

2. A method as in claim 1 further comprising forming a magnetic pole structure over the exposed magnetic material.

3. A method as in claim 1 wherein said constructing a photoresist trench further comprises:

depositing photoresist; and

performing a deep ultraviolet photolithography on the photoresist.

4. A method as in claim 1, wherein said depositing said magnetic material comprises electroplating.

5. A method as in claim 1, wherein said depositing said magnetic material comprises electroplating said magnetic material, and terminating said electroplating before said magnetic material reaches an upper opening in said trench formed in said photoresist layer.

6. A method as in claim 1, wherein said trench includes a flared portion, and wherein said depositing said magnetic material comprises electroplating said magnetic material, and terminating said electroplating before said magnetic material reaches said flared portion formed in said trench.

7 A method as in claim 1, wherein said magnetic material comprises NiFe.

8. A method as in claim 2, wherein said magnetic pole structure comprises NiFe.

9. A method as in claim 1, wherein said reactive ion milling procedure is performed sufficiently to form a recession of between 0 and 0.3 microns between said magnetic structure and an upper surface of said alumina.

10. A method as in claim 1 wherein said magnetic structure has a width sigma of less than 10 nanometers.

12. A method as in claim 1 wherein said trench formed in said photoresist layer has a width sigma of less than 10 nanometers up to a location where said magnetic material deposition will terminate.

13. A method as in claim 1 wherein said dielectric material is alumina (Al_2O_3).

14. A method as in claim 1 wherein said magnetic structure is a P3 pedestal of a magnetic pole.

15. A method as in claim 1 wherein said reactive ion mill is performed in an atmosphere comprising CHF_3.

16. A method as in claim 1 wherein said reactive ion mill is performed sufficiently to create a recess between an upper surface of said magnetic structure and an upper surface of said dielectric material.

17. A method as in claim 1 wherein said reactive ion mill is performed sufficiently to create a recess between an upper surface of said magnetic layer and an upper surface of said dielectric layer wherein said recess is between .1 and .3 microns inclusive.

18. A method as in claim 1 wherein said reactive ion mill is performed sufficiently to create a recess between an upper surface of said magnetic layer and an upper surface of said dielectric layer wherein said recess is about .3 microns.

19. A structure formed on a magnetic write head, comprising:

a magnetic structure having an upper surface and having first and second lateral sides and having a width measured between said lateral sides and having a height measured perpendicular thereto;

a dielectric layer contacting said first and second lateral sides of said magnetic structure and extending laterally therefrom and having an upper surface; and

wherein

said upper surface of said dielectric layer is recessed from said upper surface of said magnetic structure and said upper surface of said dielectric layer.

20. A structure as in claim 19 wherein said recess is between .1 and .5 microns.

21. A structure as in claim 19 wherein said recess is about .3 microns.